DRIVABLE GRASS®
by Soil Retention Products, Inc.

GUIDELINE FOR PLANTED INFILL INSTALLATIONS

Please read prior to installation and have proper equipment and safety precautions in place.

For additional information please visit our website at www.soilretention.com or call 800-346-7995.

Installer Qualifications: An experienced installer and who has successfully completed installations of pavers, porcelain pavers, or other pavement systems on projects of similar or larger scope and magnitude is recommended. **Please note that Drivable Grass (1.5" thick) has a thinner profile than pavers and while having similar installation procedures to pavers there are critical differences.**

Planning: Final surface elevations and tolerances should be as specified on the project plans. Special consideration should be given to layout, pattern, slope, drainage, root barriers and edging/confinement.

1. Drivable Grass® Material Specification

• Permeable, Flexible, Plantable Pavement System:	Drivable Grass®
• Nominal Dimensions in inches (l x w x h) :	24 in. x 24 in. x 1.5 in.
• Gross Area:	4 SF
• Weight:	45 lbs.
• Compressive Strength:	8,000 psi
• Drivable Grass® mats per pallet (each):	60
• Area Covered per Pallet:	240 SF
• Color*:	Natural Grey (Earl Grey and Shilo Tan)*
• Flexibility (minimum radius of curvature in inches):	12

*Earl Grey and Shilo Tan are manufactured only in CA. Custom colors available upon request for job lot quantities.

2. Main Steps of the Installation

A. Subgrade Preparation/Subsurface Drainage (if required)
B. Perimeter Confinement
C. Geotextile Installation (if required)
D. Base Material Installation
E. Compaction
F. Conventional Irrigation
G. Bedding Installation
H. Screeding
I. Drivable Grass® Mat Placement
J. Drip Tube Irrigation
K. Infill
L. Grass Installation

A. Subgrade Preparation/Subsurface Drainage (if required)

Excavate the installation area to the proper depth to allow for the structural pavement section below the Drivable Grass® installation in accordance with project plans and specifications. Complete any additional over-excavation and re-compaction as required to provide a firm and unyielding subgrade.

Where permeability of the subgrade is important, and site conditions permit excavation into strong native soils, compaction of the subgrade may be minimized to trimming.

Test and approve the subgrade condition and provide written certification confirming the preparation, density and elevations conform to the project plans and specifications. Special consideration should be given for the following conditions:

- ***Over-excavation depths and re-compaction of subgrade***
- ***Application of geotexile fabric over prepared subgrade (if required)***
- ***Sub-surface drainage due to low permeable subgrade (if required)***

B. Perimeter Confinement

Keeping the edges of the Drivable Grass® installation contained is crucial for a successful long-term installation.

- All driving applications require a concrete mow-strip or existing concrete at edge conditions that will see vehicular access.
- Other edging materials, such as steel or complimenting pavers, can be used in other areas where the edge is not subject to vehicular access. Using pavers as confinement can limit cuts of the Drivable Grass® mats.

C. Geotextile Installation (if required)

Geotextile type should be in accordance with project plans and specifications. At a minimum, the geotextile should be placed at the bottom and sides of the sub-grade and secured in place to prevent wrinkling. Overlap at the seams of the geotextile should be a minimum of 12 inches.
NOTE: Geotextile is always required for clay soils.

D. Base Material Installation

Backfill, level, and compact the required base material to the density, depth/thickness and surface elevation in accordance with the project plans and specifications.

NOTE: A proper aggregate base will contain a gradation of particles that will pack tightly together.

Local, state or provincial standards for aggregate base materials for roads should be used for the gradation and quality of dense-graded aggregate base materials. If no standards exist, follow ASTM D 2940, Standard Specification for Graded Aggregate Material for Bases or Subbases for Highways or Airports. The gradation for base material from this standard is given in the table below. This material should be compacted to a minimum of 95% Standard Proctor density per ASTM D 698 or local standards.

ASTM D 2940: Gradation for Dense-Graded, Crushed Stone Base	
Sieve Size	Percent Passing
2 in.	100
1 1/2 in.	95 to 100
3/4 in.	70 to 92
3/8 in.	50 to 70
No. 4	35 to 55
No. 30	12 to 25
No. 200	0 to 8

Where a permeability rate and/or water storage is required, a permeable base material that allows compaction and packs together is required for the initial 8 inches. This material generally has no more than 3 % fines passing the No. 200 sieve. In CA an example of this material is Caltrans Class 2 Permeable.

Gradation for Caltrans Class 2 Permeable Material	
Sieve Size	Percent Passing
1 in.	100
3/4 in.	90 to 100
3/8 in.	40 to 100
No. 4	25 to 40
No. 8	18 to 33
No. 30	5 to 15
No. 50	0 to 7
No. 200	0 to 3

Below the initial 8" permeable layer of permeable material, a geotextile can be used on top of an open graded rock for additional water storage.

Note: Open graded rocks (#8, #57, etc.) commonly used with Permeable Interlocking Pavements shall not be used in the top 8 inches due to limited sidewall of mats.

E. Compaction Process

To achieve good compaction, use the type of machine that provides the proper force, amplitude, and frequency. Continue to add and compact base material until the top of the base is approximately 3.5 in. below the final height of the finished elevation. The remaining space is for the 2.0 in. of sand bedding and the 1.5 in.-thick Drivable Grass® mats.

Establish final height by setting string lines to final elevation. The elevation between the material base and the final elevation should be uniform.

Note: The recommended base surface tolerance should be (+/-) 1/4 in. over a 10 ft. straight edge.

F. Conventional Irrigation

Conventional Irrigation: For conventional irrigation, the plumbing should be buried at the bottom of the base course. Concrete pads can be cut as required to allow the spray head to protrude to the surface as required.

Note: Refer to Section K if installing Drip Tube irrigation.

G. Bedding Installation

For planted applications, a minimum uniform bedding thickness of 2" consisting of a thorough mix of 75% sand and 25% approved fine ground compost shall be used.

The sand should consist of clean, non-plastic that is free from deleterious or foreign matter. The sand shall be sharp and manufactured from crushed rock. Do not use limestone screenings or stone dust. The particles shall conform to the grading requirements given in the table below:

ASTM C33 CSA A23.1-M94	
Sieve Size	Percent Passing
3/8 in. (9.5 mm)	100
No. 4 (4.75 mm)	95 to 100
No. 8 (2.36 mm)	85 to 100
No. 16 (1.18 mm)	50 to 85
No. 30 (0.600 mm)	25 to 60
No. 50 (0.300mm)	0 to 30
No. 100 (0.15mm)	2 to 10

The approved compost material should be finely ground, well screened composted products such as composted manures, mushroom compost or green-waste compost. Material should be able to mix well with sand, able to hold moisture, and provide nutrient

NOTE: It is important to moisten, but do not saturate bedding material prior to installation.

H. Screeding

Spread the 75% sand-25% compost mix uniformly and compact using vibrating plate compactor. Use steel pipes, edge restraints and string lines to assure the screeded 75% sand-25% compost mix will allow the top of the Drivable Grass® mats to conform to designed finished elevations. Allow 1/8 in. to 1/4 in. above specified surface elevations to compensate for minor settlement.

I. Drivable Grass® Mat Placement

Install the Drivable Grass® mats in a **running bond pattern**. Working in one axial direction at a time, securely butt mats up against each other. ***Trying to install Drivable Grass® in more than one axis at a time could result in a significant alignment problem***. **We recommend a diagonal string line or large 90 degree angle to help with alignment.** Make sure to check the alignment in both directions. Make minor adjustments to Drivable Grass® mats as required to maintain good grid pattern alignment.

Partial mats will be necessary. Fit the area first to avoid ending up with small pieces of the individual pieces that would likely come lose. Do not drag the Drivable Grass® mats or walk on sand bedding as this can cause uneven placement.

The grid inside the Drivable Grass® mats can be cut with a utility knife or chisel to fit site conditions. At terminating edges or curved installations, the mats can also be cut with a masonry blade and using a powdered chalk line. Be sure to properly clean the Drivable Grass® mats after cutting with a dry blade by brushing or blowing to avoid staining from fine dust.

Partial mats (minimum of 2 X 2 muffins) should be limited to edges where driving is limited. Make sure to make minor adjustments to fit large pieces leaving no significant gaps between the edge restraint and the mats. Secure partial mats using 8 in. spikes in at least two locations. Cut installed full mats as needed along edges to fit a minimum of 2 X 2 muffins.

1. Seat the Drivable Grass® mats into the bedding course **prior to installing any spikes** using a low-amplitude, 75-90 Hz vibrating plate compactor. This will also help get the bedding sand up in the joints between the mats. Use a fabric or pad between the compactor and Drivable Grass® mats to prevent scuffing or chipping.

2. Final surface tolerances should be as follows:

    a. Final surface tolerance of Drivable Grass® mats shall not deviate more than (+/-) 1/4 in. over a 10-foot straight edge.
    b. Surface elevation of the Drivable Grass® mats shall be 1/8 in. to 1/4 in. above adjacent drainage inlets, concrete collars or other type of inlets.
    c. Lippage: No greater than 1/8 in. difference in height between Drivable Grass® mats.

J. Spike Installation -Not needed for sod installations or full coverage, well rooted grass.

K. Drip Tubing Irrigation

Drip Tubing: For drip irrigation, the tubing should be placed between Drivable Grass® muffins and secured in place with staples. The flow rate, tube and emitter spacing should be placed in accordance with the project plans and specifications. See typical details at: https://soilretention.com/drivable-grass/professional/drawings/

L. Infill (same material as bedding)

Brush the infill between the muffins of the Drivable Grass® mats. The infill mix should be recessed 1/4" below the mat surface.
NOTE: Estimated Infill Volume = 0.2 Cubic Feet per Mat OR 0.05 Cubic Feet per Square Foot.

M. Grass Installation

NOTE: Grass type should be as specified in the project plans.

1. Seeded Applications:

    - Broadcast approved grass seed evenly over the Drivable Grass® mats.
    - Lightly cover with a seed cover. The seed cover should be light and not contain small particles that mix into the infill and can be sucked up by the lawn mower.
    - Keep seeds moist as they sprout, watering often so germinating seeds never dry out.

2. Hydroseed Applications:

    - Apply approved hydroseed evenly at application rate specified.

3. Sod Applications:

    - Apply the 75% sand-25% compost mixture to completely cover the Drivable Grass® mats approximately 1/4" **ABOVE** the mat surface.
    - Place the approved sod and use a lawn roller to push sod firmly against soil beneath.

Avoid significant run on during plant establishment and stay off planted areas until established. Mow grass when it reaches 2-3 inches above the surface. Driving can typically begin after the second mowing.

Photo 1: Finished Drivable Grass® planted infill installation.